

CLAIMS

1. A method of igniting a compressed base charge in a detonator, the base charge being caused to detonate by means of an initiating charge, c h a r a c t e r i s e d
5 in that the base charge is further compressed to increased density under the action of a pressure from combustion gases which develop from the initiating charge which burns during an initiation phase, which pressure from the combustion gases acts on the base charge by way
10 of a base charge compressing means arranged between the initiating charge and the base charge, said increased density being maintained until the base charge is caused to detonate.

2. A method as claimed in claim 1, wherein the further
15 compression of the base charge which is provided during the initiation phase results in at least some part of the base charge attaining a substantially crystalline state.

3. A method as claimed in claim 1 or 2, wherein a
20 secondary explosive arranged between the initiating charge and the base charge is caused to detonate after the provision of increased density in the base charge, which is ignited by the detonation of said secondary explosive.

25 4. A method as claimed in claim 3, wherein the secondary explosive is present in a loosely pressed or unconfined state, and the combustion gases of the initiating charge are further used to heat until ignition and to compress the secondary explosive, which is finally caused
30 to detonate.

5. A method as claimed in claim 3 or 4, wherein the pressure caused by the combustion of the initiating charge compresses the secondary explosive indirectly by transmission of force via a secondary explosive

compressing means arranged between the initiating charge and the secondary explosive.

6. A method as claimed in claim 4 or 5, wherein the secondary explosive is first heated until ignition, by
5 combustion gases which develop from the initiating charge flowing into the secondary explosive, and then subject to said compression.

7. An initiating element for use in a detonator to cause a compressed base charge, arranged in the detona-
10 tor, to detonate, said initiating element comprising an ignitable initiating charge which upon ignition generates combustion gases by means of which the base charge is intended to be caused to detonate, c h a r a c t e r i s e d
in that it comprises a base charge compressing means,
15 which, when the initiating element is positioned in a detonator, is arranged, on the one hand, to abut against the base charge and, on the other, to be acted upon by said combustion gases to be moved towards the base charge for compression of the same.

20 8. An initiating element as claimed in claim 7, which comprises a secondary explosive which is arranged to be located, when the initiating element is positioned in a detonator, between the initiating charge and the base charge and to be caused to detonate by means of said
25 combustion gases and then cause detonation of the base charge.

9. An initiating element as claimed in claim 8, wherein the secondary explosive is present in a loosely pressed or unconfined state.

30 10. An initiating element as claimed in claim 9, wherein means are arranged to heat until ignition and compress the loosely pressed secondary explosive, by the action of the combustion gases, thereby to increase its energy to a level where it is caused to detonate.

35 11. An initiating element as claimed in claim 10, wherein said loosely pressed secondary explosive is arranged in a duct in, or alternatively around, the base

charge compressing means, and a secondary explosive compression means is movably arranged in the duct to cause said compression of the secondary explosive under the action of the pressure from the combustion gases.

5 12. An initiating element as claimed in claim 11, wherein the length of the duct is greater than its diameter and smaller than ten times its diameter.

10 13. An initiating element as claimed in claim 11 or 12, wherein the base charge compressing means comprises a first piston and the secondary explosive compressing means comprises a movably arranged second piston, the outer diameter of said first piston preferably being between 1.1 and 5.0 times the diameter of the movably arranged second piston.

15 14. An initiating element as claimed in any one of claims 7-13, which has a substantially circular cross-section with a diameter which is substantially the same as the inner diameter of a detonator in which the initiating element is intended to be placed.

20 15. A detonator comprising a compressed base charge of a secondary explosive, wherein at least some part of said base charge is in a substantially crystalline state at the moment of detonation, the detonator comprising means for further compressing the base charge during an initiation phase, at least some part of the base charge
25 thereby attaining a substantially crystalline state.

30 16. A detonator comprising a compressed base charge of a secondary explosive, characterised in that it is provided with an initiating element as claimed in any one of claims 7-14.